Introduction to IPython, IPython Notebooks and Pandas
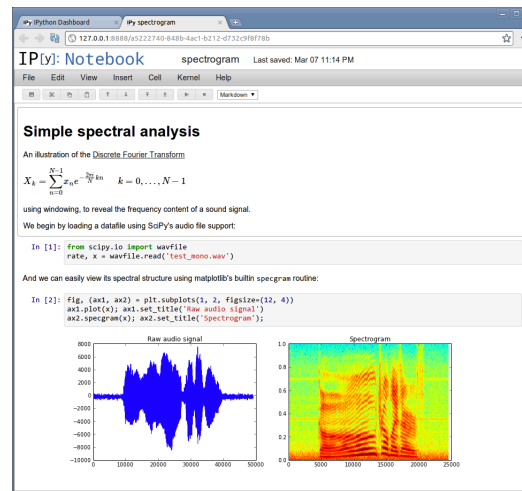
Long title, shorter talk

IPython is…

a rich architecture for interactive computing with:

- A powerful interactive shell

- A kernel for Jupyter

- Support for interactive data visualization and use of GUI toolkits

- Flexible, embeddable interpreters to load into your own projects

- Easy to use, high performance tools for parallel computing

IPython Notebooks are...

an interactive computational environment, in which you can combine code execution, rich text, mathematics, plots and rich media

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Pandas is…

an open source, BSD-licensed library providing high-performance, easy-to-use data structures and data analysis tools for the Python programming language.

Jupyter is…

actually Project Jupyter and was born out of the IPython Project in 2014 as it evolved to support interactive data science and scientific computing across all programming languages

Open Data

- There are a lot of sources out there, I've only messed with Canadian ones

- Some that I've looked at are:
  - Environment Canada
  - City of Ottawa

You can get more info at http://open.canada.ca

What are we doing?

- Using free tools and data (of course), look at a few things from the weather over the past few years

- The result is a live document with up to date info. I'll show that if the bandwidth here allows it ☺

- This also allows you to follow the reproducible research paradigm.

Things not covered

- The web interface

- Inserting/removing cells

- Pretty formatting

- Any actual basics

- There is a link for a tutorial at the end which you should check out if you want to learn more

Using my MacBook and Chrome for the demo

DEMO

Demo Notes

- If you download the full cookbook from the link given in the resources, you will need to adjust a few items, as it was written for earlier versions

- I have not taken the time to determine pretty settings for the graphs. I'm using defaults for everything

Resources

- Ipython: http://ipython.org
- Docs: http://ipython.readthedocs.org/en/stable/
- Project Jupyter: http://jupyter.org/
- Tutorial: http://opentechschool.github.io/python-data-intro/core/notebook.html
- Pandas cookbook: https://github.com/jvns/pandas-cookbook
  - Yes, this is where I got the notebook I hacked up
- Environment Canada data: http://climate.weather.gc.ca
- http://www.randalolson.com/2012/05/12/a-short-demo-on-how-to-use-ipython-notebook-as-a-research-notebook/

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